

ABSTRACT.

Device Converting Thermal Energy into Kinetic One  
by using spontaneous isothermal gas aggregation

Device converting thermal energy into kinetic one, related to the group of machines based on four-phase basic thermodynamic cycles. It uses rarefied gas in a novel three-phase cycle, of which the first phase is a spontaneous isothermal gas aggregation (0----1), equivalent to an ideal isothermal compression, followed by an adiabatic expansion (1----2), with work produced at the expense of the internal thermal energy of the gas via a gas turbine (5), and by an isobaric expansion (2----0), where the expanded gas is reheated via a heat exchanger (6), while cooling the ambient air (7). The spontaneous aggregation (0----1) is accomplished when the gas passes through numerous special microscopic holes, like slot (26) and cone (27) with diverging inner surfaces, cavity (28) with concave spherical surfaces, where the molecular layer adsorbed upon the inner walls of the holes, slightly diverts the (normally) uniform rebound of the molecules to directions inclining towards the perpendiculars to the reflecting surfaces, with the result that a small amount of gas is passing through the holes spontaneously achieving the aggregated output. The device is used for producing energy (e.g. electrical one) and simultaneously refrigeration.